



BioTechCircle News®

October, 2006

Favorite article in October:

Findings show an active evolutionary process in which nature inserts genes much like biotechnologists do. Now we must reassess the allegations that biotechnologists perform 'unnatural acts,' thereby creating 'Frankenfoods.'

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=22300003>

In this articles section: links to 61 free Web articles in 8 major categories.

The major categories are in alphabetical order and further subdivided to make it easy for you to locate news and developments in technology, the business and the markets in the life science areas of interest to you.

Note: if the links don't connect you directly, please copy and paste the entire URL into your web browser.

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AGRI-BIOTECH

Subcategory: Evolution Research

Genome Archaeology Illuminates the Genetic Engineering Debate

Bio.com

03-Oct-06

Findings show an active evolutionary process in which nature inserts genes much like biotechnologists do. Now we must reassess the allegations that biotechnologists perform 'unnatural acts,' thereby creating 'Frankenfoods.'

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=22300003>

Subcategory: Miscellaneous

Comparative Genomics of the Lactic Acid Bacteria

National Academy of

09-Oct-06

The small genomes of lactic acid bacteria encode a broad repertoire of transporters for efficient carbon and nitrogen acquisition from the nutritionally rich environments they inhabit. Play a key role in the production of fermented foods and beverages.

<http://www.pnas.org/cgi/content/abstract/0607117103v1>

BIOBUSINESS MANAGEMENT

Subcategory: Patent/Intellectual Property Issues

Overcoming Intellectual Property Phobia in China

in-Pharma Technologist

23-Oct-06

China is a big market with a lot of potential but many pharma industry firms still avoid doing business in the country because of fears that their intellectual property (IP) cannot be protected. Reviews legal system and IP infringement proof requirements.

<http://www.in-pharmatechnologist.com/news/ng.asp?id=71476-intellectual-property-institute-china-intellectual-property-patent>

Subcategory: Personnel Issues

e-learning Could Ease Regulatory Training Headaches

Kirsty Barnes

in-Pharma Technologist

20-Oct-06

Advises biopharma and lifesciences firms to make use of e-learning software solutions to relieve the burden on keeping staff updated on regulatory and compliance training.

<http://www.in-pharmatechnologist.com/news/ng.asp?id=71465-e-learning-regulatory-authorities>

INDUSTRY

Subcategory: Environment

Biodegrade Chlorinated Compounds Right at Home

Margaret Findlay, Ph.D., Pollution Engineering
Samuel Fogel, Ph.D., and Cathy Dombrowsk

08-Oct-06

The unique anaerobic bacteria that degrades TCE, Dehalococcoides ethenogenes, can remove chlorine atoms from the solvents tetrachloroethene (PCE) and TCE, as well as from their recalcitrant daughter products, DCE and vinyl chloride (VC).

http://www.pollutioneng.com/CDA/Articles/Cover_Story/a9724b25c542e010VgnVCM100000f932a8c0

Subcategory: Imaging

Scientists to Identify Protein Markers for Cancer

Univ. of California, San Francisco

27-Sep-06

Research team will work to establish the best method for conducting mass spectrometry for cancer biomarker discovery. One lab may suggest certain proteins are associated with a given blood sample, while another lab may point to other proteins.

<http://pub.ucsf.edu/newsservices/releases/200609276/>

Subcategory: Proteomics

RNA Interference

Chemical & Engineering News

09-Oct-06

The 2006 Nobel Prize in Physiology or Medicine honors the discoverers of RNA interference, the gene-silencing mechanism in which double-stranded RNA instigates the degradation of messenger RNA from specific genes.

<http://pubs.acs.org/cen/news/84/i40/8440rna.html>

Another Kornberg Nabs A Nobel

Chemical & Engineering

09-Oct-06

Reports Nobel awarded to Roger D. Kornberg, son of Nobelist Arthur, for studies on the molecular basis of eukaryotic transcription, the process by which the genetic code of DNA is converted into messenger RNA for later translation into proteins.

<http://pubs.acs.org/cen/news/84/i41/8441chemistry.html>

INVESTMENTS/ GOV. SUPPORT

Subcategory: Bioinformatics

Pfizer to Fund Doctoral Study Fellowships, Seminars in Biostatistics at

EurekaAlert!

16-Oct-06

Valued at \$300,000 over five years, Pfizer's commitment reflects the ever-

increasing integration of mathematics into the life sciences, from research and development to the commercialization of medicines and biotechnology.
http://www.eurekalert.org/pub_releases/2006-10/rtsu-ptf101606.php

Subcategory: Genome Sequence

\$10m Prize for Super Genetic Test

BBC News

04-Oct-06

The US-based X-Prize Foundation is offering \$10 million for the first private team that can decode 100 human genomes in 10 days. It currently costs millions of dollars and takes many months to sequence an individual's genome, encoded in DNA.

<http://news.bbc.co.uk/2/hi/science/nature/5404678.stm>

NOVEL APPLICATIONS

Subcategory: Energy/Fuel

Biofuel Cells Without the Bio Cells

Bio.com

17-Oct-06

Research that directly transfers electrons to a mineral using a purified protein suggests that proteins rendered portable from the organisms that spawned them could make miniature bioreactor cells feasible.

<http://www.bio.com/realm/research.jhtml?realmId=5&cid=22700042>

Subcategory: Miscellaneous

Virginia Tech Chemists Create New Polymers by Adding DNA Base

Bio.com

12-Oct-06

Base pairs are the nucleotides on each side of the rungs that connect the strands of the DNA ladder. Attributes of new polymers created by adding DNA base pairs include improved stretchable behavior and self-healing polymer films and coatings.

<http://www.bio.com/realm/research.jhtml?realmId=5&cid=21700059>

Subcategory: Nanotechnology

Nanoparticle Sheets Form Spontaneously

Chemical & Engineering News

16-Oct-06

Crystalline nanoparticles of cadmium telluride, a semiconducting material used to make thin films for solar cells, spontaneously assemble into two-dimensional free-floating sheets in water without a template to guide them.

<http://pubs.acs.org/cen/news/84/i42/8442notw7.html>

PLATFORM TECHNOLOGIES

Subcategory: Cloning Techniques

Cloned Mice Created from Fully Differentiated Cells, a Milestone in Cloning Research

EurekAlert!

01-Oct-06

Researchers prove that cells that have completely evolved to a specific type not only can be used for cloning purposes, but they may be a better and more efficient starting point.

http://www.eurekalert.org/pub_releases/2006-10/uopm-cmc092606.php

Subcategory: Drug Discovery

Genetic 'Roadmap' Charts Links between Drugs and Human Disease

Bio.com

28-Sep-06

Researchers announce the "Connectivity Map" that can connect human diseases with potential drugs to treat them, as well as predict how new drugs work in human cells.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=22100054>

Subcategory: Genome Sequence

Powerful Genome ID method Extended to Humans

Bio.com

09-Oct-06

A mathematical discovery has extended the reach of a novel genome mapping method to humans, potentially giving cancer biology a faster and more cost-effective tool than traditional DNA sequencing.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=22600006>

Subcategory: Lab-on-a-chip/ DNA Chips/

Tech institute develops "Lab on a Chip"

Virginia Tech

15-Sep-06

Including a miniature pump, valve and separation column, the chip design creates a flow of liquids that separate specific proteins. The detection interface can then determine which protein may indicate disease.

<http://www.collegiatetimes.com/news/1/ARTICLE/7487/2006-09-14.html>

Subcategory: Nanotechnology

Nanoparticle Assembly Enters the Fast Lane

Bio.com

11-Oct-06

The speed of nanoparticle assembly can be accelerated with the assistance of DNA. Nanoparticles could potentially be used for more efficient energy generation and data storage, as well as improved methods for diagnosing and treating disease.

<http://www.bio.com/realm/research.jhtml?realmId=5&cid=22600021>

Researchers Make Nanosheets that Mimic Protein Formation

Bio.com

12-Oct-06

Researchers have discovered a way to make nanocrystals in a fluid assemble into free-floating sheets the same way some protein structures form in living organisms.

<http://www.bio.com/realm/research.jhtml?realmId=5&cid=22600042>

Damage Control

Chemical & Engineering News

18-Sep-06

A cocktail of carbon nanofibers and stem cells can heal neural tissue in rats damaged by a stroke, according to a recent study, showing that the in vitro regenerative healing power of nanoparticles can transfer to animals.

<http://pubs.acs.org/cen/news/84/i38/8438nanofibers.html>

Nanoscale Copies

Chemical & Engineering News

02-Oct-06

Researchers have demonstrated that 55,000 copies of a complex nanoscale pattern can be drawn simultaneously in just minutes. Potential for further developments in biochemical and physical-chemical applications.

<http://pubs.acs.org/cen/news/84/i40/8440notw4.html>

The World According To Rick

Chemical & Engineering News

09-Oct-06

Richard Smalley left his mark on science by laying the foundation for nanotechnology as we know it. Then he tried to save the world. Article celebrates the 10th anniversary of the Nobel Prize award for the discovery of fullerenes (buckyballs).

<http://pubs.acs.org/cen/coverstory/84/8441cover.html>

Subcategory: Proteomics

Squeeze Play: Protein's Grip Like a Baseball Bunter's

Bio.com

10-Oct-06

Calmodulin passes on signals both outside and inside of cells by binding with calcium ions and changes shape when it does so. As it changes shape, it grabs hold or lets go of other proteins like the hands of a big league slugger.

<http://www.bio.com/realm/research.jhtml?realmId=2&cid=22600001>

New Technique Boosts by Four Times the Size of a Protein that Researchers Can Analyze

Bio.com

06-Oct-06

Imagine you had to break a secret code, but you could see only part of the message. Researchers have extended a powerful technique to increase the size of a protein that can be analyzed, to those containing more than 2,000 amino acids, up from about 500.

<http://www.bio.com/realm/research.jhtml?realmId=2&cid=22400038>

RESEARCH ADVANCEMENTS

Subcategory: Cardiology/ Vascular Diseases

Genes and Diet Linked to Risk Factors for Heart Disease

Bio.com

06-Oct-06

People who carry a particular variant of APOA5 may have elevated risk factors that are associated with heart disease, but only if they also consumed high amounts of omega-6 fatty acids in their diets.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=22400037>

Nanosolution Halts Bleeding

Technology Review

10-Oct-06

Composed of peptides, a biodegradable liquid self-assembles into a protective nanofiber gel when applied to a wound. Bleeding stops in less than 15 seconds, and even worked on animals given blood-thinning medications.

http://www.technologyreview.com/read_article.aspx?id=17597&ch=biotech

Subcategory: Dermatology

Solved: The Mystery of Flesh-Eating Bacteria's Relentless Attack

Howard Hughes Medical Institute

27-Sep-06

The success of group A Streptococcus is due in part to a protein that blocks the immune system's distress calls. Discovery could lead to new strategies for treating necrotizing fasciitis and halting its rapid destruction of tissue.

<http://www.hhmi.org/news/hanski20060927.html>

Subcategory: Disease Prevention

Major Biofilm Dispersion Breakthrough

Bio.com

12-Oct-06

the discovery of a molecule that induces the dispersion of biofilms will likely mean a sea change in health care, manufacturing, shipping and pharmaceuticals over the coming years.

<http://www.bio.com/realm/research.jhtml?realmId=5&cid=22600030>

Subcategory: Environment

Microbes Live Near Undersea CO₂ Lake

Chemical & Engineering

18-Sep-06

A lake of liquid carbon dioxide and a microbial ecosystem that exists in association with it under the seafloor have been uncovered by scientists. Implications for potential microbial habitats and ecosystems on the polar subsurface of Mars.

<http://pubs.acs.org/cen/news/84/i38/8438notw10.html>

Subcategory: Geriatrics

Age-related Changes in DNA Repair Illuminate the Connection Between Age and Genetic Damage

Bio.com

23-Oct-06

Researchers found that cells in young fruit flies tend to use processes that do not involve extensive DNA synthesis and do not require a matching DNA template for repair, whereas DNA breaks in older flies are repaired using a matching template.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=22700102>

Subcategory: Immunology/ Infectious Diseases

Researchers Map Spread of Pathogens in the Human Body

Bio.com

19-Oct-06

A new, more accurate, method of mapping how bacteria spread within the body could lead to more effective treatments and prevention of certain bacterial infections.

<http://www.bio.com/realm/research.jhtml?realmId=3&cid=22700072>

An Infectious Agent of Deception, Exposed through Proteomics

Bio.com

29-Sep-06

Knocking out the gene that codes for the protein called STM3117, researchers were able to cripple the Salmonella microbe's ability to multiply inside macrophages. Implications for drug and vaccine designers.

<http://www.bio.com/realm/research.jhtml?realmId=2&cid=22200001>

'Failed' Experiment Yields a Biocontrol Agent That Doesn't Trigger Antibiotic Resistance

EurekAlert!

04-Oct-06

When two benign mutations of an ordinary bacterial plasmid were brought together, the plasmid carrying them became harmful by over-replicating within the bacterium, ultimately destroying it. Plasmids are circular DNA molecules.

http://www.eurekalert.org/pub_releases/2006-10/uow-ey100406.php

Researchers Uncover a Secret of the Black Death

University of Massachusetts

18-Sep-06

The production of avirulent bacterial strains with enhanced ability to stimulate the immune system could constitute a new general method for generating effective vaccines.

http://www.umassmed.edu/pap/news/2006/09_18_06.cfm

'Protecting Virus' Offers Instant Flu Protection & Converts Flu Infections into Their Own Vaccines

University of Warwick

03-Oct-06

The genetic material of a flu virus consists of 8 individual segments of single stranded RNA. Protecting influenza virus has a huge but specific deletion of around 80% of the RNA of one of these 8 strands, making the virus harmless.

<http://www2.warwick.ac.uk/newsandevents/pressreleases/dipr/>

Subcategory: Musculoskeletal

New Way to Build Stronger Bones

BBC News

08-Oct-06

Researchers found they could massively increase bone mass in mice by tweaking the structure of a protein called NFATc1, raising hopes of a treatment for osteoporosis.

<http://news.bbc.co.uk/2/hi/health/5412272.stm>

Gene Found That Helps Combat MS

BBC News

02-Oct-06

Researchers found that a known risk gene for MS, called DR2b, is always partnered by a twin gene - DR2a. DR2a tempers the effects of the risk gene and reduces the severity of MS symptoms.

<http://news.bbc.co.uk/2/hi/health/5379250.stm>

Muscle Pathology is Key to Nerve Cell Death in Mice with Kennedy

University of Michigan

15-Sep-06

Using a mouse model of Kennedy disease, scientists have found that faulty signals between muscle cells and motor neurons could be a key factor in human neuromuscular disorders such as ALS or Lou Gehrig's disease.

<http://www.med.umich.edu/opm/newspage/2006/kennedy.htm>

Subcategory: Neurology

Intramembrane Protease

Chemical & Engineering News

16-Oct-06

In a study that may be relevant to Alzheimer's and other diseases, researchers have obtained the first atomic-scale 3-D structure of an intramembrane protease and have proposed a molecular mechanism by which it might work.

<http://pubs.acs.org/cen/news/84/i42/8442notw3.html>

When Nerve Cells Can't Make Contact

Max Planck Society

22-Sep-06

Neuroligins ensure that signal transmission between nerve cells functions. In the brain of genetically altered mice without neuroligins, the synapses do not mature. Researchers assume that similar malfunctions are experienced by autistic patients.

<http://www.mpg.de/english/illustrationsDocumentation/documentation/pressReleases/2006/pressRelease20060922/>

Subcategory: Oncology

Tissue Geometry Plays Crucial Role in Breast Cell Invasion

Berkley Laboratory

12-Oct-06

Research shows that tissue geometry can control the morphogenesis of breasts and other organs by defining the local cellular branching microenvironment. The finding may in the future reveal mechanisms to control cancer invasion and metastasis.

<http://www.lbl.gov/Science-Articles/Archive/LSD-tissue-geometry.html>

A Promising New Vaccination Strategy for Late-Stage Melanoma

Cancer Research Institute

20-Sep-06

Researchers have successfully induced a comprehensive, tumor-specific immune response in patients with late-stage metastatic disease using recombinant vaccinia-NY-ESO-1 and recombinant fowlpox-NY-ESO-1 vaccine alone and together.

<http://www.cancerresearch.org/news/news.html>

Acylfulvene Attack

Chemical & Engineering News

12-Sep-06

Acylfulvenes are a potent class of antitumor agents that were inspired by a toxin in the luminescent jack-o'-lantern mushroom. Reports that researchers have learned how the potent anticancer agent binds, then breaks, DNA.

<http://pubs.acs.org/cen/news/84/i38/8438acylfulvenes.html>

Three Molecular Triggers Threaten Leukemia Patients

EurekAlert!

03-Oct-06

Researchers note that a multidrug approach is required for acute myelogenous leukemia, since the more of the 3 pathways (known as PKCa, RAS/Raf/MEK/ERK and PI3/AKT) that are active in a patient, the worse their prognosis.

http://www.eurekalert.org/pub_releases/2006-10/uotm-tmt100306.php

USC Researchers Discover Breast Cancer Stem Cells in Bone Marrow

EurekAlert!

05-Oct-06

Almost all tumor cells found in the bone marrow of early stage breast cancer patients appear to be breast cancer stem cells, suggesting the risk of disease spread for all breast cancer patients may be greater than previously thought.

http://www.eurekalert.org/pub_releases/2006-10/uosc-urd100506.php

Two-Faced Protein Can Stop Metastasis or Promote It

Mayo Clinic

18-Sep-06

A protein, p120 catenin, is found as a key player in both suppressing tumor invasion and promoting it. Findings open up a whole new field of discovery for novel therapeutics that should be applicable to most types of tumors.

<http://www.mayoclinic.org/news2006-jax/3662.html>

New Target for Cancer Therapy Identified

Monash University

20-Sep-06

Researchers have identified two proteins that are involved in stopping the gene from producing a protein called telomerase that is essential if cancer cells are to proliferate.

<http://www.monash.edu.au/news/newsline/story/1015>

New Path from Estrogen to Survival in Breast Cancer Cells Described

The University of Texas

25-Sep-06

A breast cancer-associated protein 3 (BCA3), which had been recently found to be over-expressed in both breast and prostate cancers can act like a tumor suppressor when modified by the protein NEDD8.

<http://www.mdanderson.org/departments/newsroom/display.cfm?id=6C70D16C-C98D-4342-9AE00B3BF82715AD&method=displayFull&pn=00c8a30f-c468-11d4-80fb00508b603a14>

Subcategory: Ophthalmology

Intrinsic Eye Protein Halts Angiogenesis

Bio.com

18-Oct-06

Researchers show how a healthy cornea remains clear and free of blood vessels, which is essential for vision, and raises questions about the implications for anti-angiogenesis treatments in macular degeneration, cancer and other diseases.

<http://www.bio.com/realm/research.jhtml?realmId=4&cid=22700065>

Subcategory: Reproduction

Researchers Discover Tiny Gene Mutations that Cause Birth

Bio.com

11-Oct-06

Children born with CFC (cranio-facio-cutaneous) syndrome have been shown to have tiny miscodings in any of three different genes that relay signals within a cellular biochemical pathway called the MAPK pathway.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=22600027>

RESEARCH TOOLS

Subcategory: Biomarker

The Development of Biomarkers to Bridge Preclinical and Clinical

Pharmaceutical Discovery

01-Oct-06

Building the in vitro assay side by side with the in vivo animal model to combine the multiparameter aspect of in vitro with the multidimensional aspect of in vivo creates a total portrait of the disease state.

http://www.pharmaceuticaldiscovery.com/archives/Sept 2006/BN Tech Brief_THE DEVELOPMENT OF BIOMARKERS.asp

An Analysis Approach to Identify and Qualify Candidate Cross-Species

Biomarkers

Pharmaceutical Discovery

01-Oct-06

While genomic findings are only the first step, they are an enabling technology in biomarker identification and qualification. Case study of the fetuin-B gene as indicative of chronic liver disease.

http://www.pharmaceuticaldiscovery.com/archives/Sept%202006/BNTechBrief_Identifying_and_Quantifying.asp

Subcategory: Computing Systems

DNA Computing Targets West Nile Virus, Other Deadly Diseases

Bio.com

16-Oct-06

Researchers have developed a DNA-based computer representing the first "medium-scale integrated molecular circuit" that could lead to faster, more accurate tests for diagnosing West Nile Virus and bird flu.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=22700016>

Subcategory: Evolution Research

Researchers Find Smallest Cellular Genome

Bio.com

12-Oct-06

The bacteria *Carsonella ruddii* has the fewest genes of any cell, only 159,662 base-pairs of DNA, which translates to only 182 protein-coding genes, say researchers. *Carsonella* and its insect host provide new insight into bacterial evolution.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=22600040>

How Nature Tinkers with the Cellular Clock

Bio.com

27-Sep-06

The cell cycle is so fundamental for a cell that its machinery has been almost entirely conserved through evolution, but the temporal regulation of this process has evolved remarkably fast according to researchers.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=22100034>

Investigator Seeks to Uncover Roots of DNA's 'Sweet' Secret

Bio.com

29-Sep-06

Researchers report the X-ray crystal structure of homo-DNA, an artificial analog of DNA in which the usual 5-carbon sugar has been replaced with a 6-carbon sugar. By exchanging sugars, researchers can make and test alternatives.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=22400004>

Subcategory: Gene Sequences

Comparing Chimp, Human DNA

Bio.com

13-Oct-06

Most of the big differences between human and chimpanzee DNA lie in regions that do not code for genes, according to a new study. Instead, they

may contain DNA sequences that control how gene-coding regions are activated and read.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=22700004>

Subcategory: Genome Sequence

Genomic Comparison of Lactic Acid Bacteria Published

Bio.com

17-Oct-06

Lactic acid-producing bacteria play a key role in the production of fermented foods and beverages, and researchers have characterized the genome sequences of nine different lactic acid-producing bacteria, or LAB.

<http://www.bio.com/realm/research.jhtml?realmId=1&cid=22700032>

Subcategory: Imaging

One-of-a-kind Imaging Probe Reveals Secrets Useful for Drug

University of Florida

02-Oct-06

An extremely sensitive probe has been used to discover compounds, on a microgram scale, not previously known to be present in spindly insects called common two-stripe walking sticks that spray venom to defend themselves from predators.

<http://news.ufl.edu/2006/10/02/walking-stick/>

Subcategory: Oncology

Listening To the Sound of Skin Cancer

Bio.com

16-Oct-06

Photoacoustic detection combines laser techniques from optics and ultrasound techniques from acoustics and uses a laser to make cells vibrate and then picks up the characteristic sound of melanoma cells.

<http://www.bio.com/realm/research.jhtml?realmId=4&cid=22700015>

Researchers Publish Largest Genome-wide Study of Prostate Cancer in African American Men

EurekAlert!

11-Oct-06

Using genetic markers, researchers from 14 institutions across the US identified several regions of the human genome that likely contain genes that, when altered, increase the risk of developing prostate cancer.

http://www.eurekalert.org/pub_releases/2006-10/ttgr-rpl101106.php

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